



October 2014 Environmental Update for SLEMA Board

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Outline

1. Mine Update
2. Inspection Update
3. Regulators' Update
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Acronyms

- AANDC – Aboriginal Affairs and Northern Development Canada (previous INAC – India and Northern Affairs Canada)
- AEMP – Aquatic Effects Monitoring Program
- ARD – Acid Rock Drainage
- DFO – Fisheries and Oceans Canada
- EC – Environment Canada
- ENR – Department of Environment and Natural Resources, GNWT
- GNWT – Government of the Northwest Territories
- MVLWB – Mackenzie Valley Land and Water Board
- PK – Processed Kimberlite
- SLEMA – Snap Lake Environmental Monitoring Agency
- SNP – Surveillance Network Program
- TDS – Total Dissolved Solids
- WEMP – Wildlife Effects Monitoring Program
- WTP – Water Treatment Plant
- WMP – Water Management Pond



1.1 Mine Update – September 2014

- Production rate: 79.2 % of its capacity (74,801 tonnes of kimberlite processed)
- 23,238 m³ of water withdrawn from Snap Lake
- 1,428m259 m³ of treated water discharged into Snap Lake
- 64,164 tonnes of coarse reject and 40,827 m³ of slimes deposited in the North Pile
- No reportable spills
- Water sampled in 16 monitoring stations
 - The monthly average for all parameters met compliance



1.2 Submissions

- De Beers submitted the revised Water Management Plan on October 1, 2014
- De Beers submitted the updated Acid/Alkaline Rock Drainage and Geochemical Characterization Plan on October 8
- De Beers submitted the 2013 Environmental Agreement Annual Report on October 14
- De Beers submitted the revised North Pile Management Plan on October 21



1.3 De Beers Response to SLEMA about Non-reportable Spills

- Dated October 7, 2014
 - SLEMA staff inquired about the reporting of non-reportable spills at the mine site via e-mail on October 3
- De Beers responded that “De Beers is compliant with all aspects of the Board issued document pertaining to spill reporting, and for this reason the decision was made to no longer provide non-reportable spills in the monthly SNP”



Requirements for proponents when pertaining to spill reporting

- Clarification of Spill Reporting Expectations to the Land and Water Boards of the Mackenzie Valley, June 1, 2012
- The Boards have determined that they require proponents to:
 - Maintain records for all spills, whether on the surface or within an underground operation;
 - Report all spills greater than 100 litres, whether on the surface or within an underground operation, to the 24-Hour Spill Hotline in accordance with instructions contained in the "NT-NU Spill Report" form, the *Spill Reporting Protocol for Mining Operations (2004)*, or subsequent versions; and
 - Ensure compliance with all land use permit and water licence conditions related to spill reporting and all applicable legislation and regulations.



1.4 Fish Early Life Stage Toxicity Test Follow Up Investigation

➤ Dated October 21, 2014

- The testing for Fathead Minnows commenced on August 7, 2014
 - By Day 4 of the lab test with lake water there was noted toxicity
 - By Day 7, the lab test had failed
- De Beers provided a complete investigation of cause for stakeholder information
 - Attached the Final Fish Early Life Stage Toxicity Test Follow Up Investigation (by Golder Associates)
 - The report concludes that there was no clear cause identified that can account for the toxicity observed in the August sample
- Re-initiated test passed and all test species survived



2. Inspection Update

- Inspector – Jamie Steele
- No inspection reports received in October 2014



3. Regulators' Update – MVLWB (I)

- Invited reviewers to submit comments on Water Management Plan on October 2, 2014
 - Due on Oct 27
- Approved the Waste Management Plan as submitted on October 9
- Approved the North Pile Management Plan conditionally on the minor changes on October 9
 - Revised Plan to be submitted by October 27



3. Regulators' Update – MVLWB (II)

- Approved De Beers' request to begin construction of the West Cell on October 9
- Confirmed, on October 24, 2014 that the changes requested in the October 9, 2014 letter have all been addressed, and the North Pile Management Plan has been accepted



3. Regulators' Update – ENR

- Distributed copies of the 2013 Environmental Agreement Annual Report to Parties of the Environmental Agreement and SLEMA and requested for comments on October 15, 2014
 - Due on November 27



4. Aboriginal Update

- No comments received in October 2014



5. Stakeholders' Update

- Comments on Water Management Plan Revisions by Environment and Natural Resources (ENR) and Environment Canada (EC) on October 27, 2014



5.1 ENR's Comments on Water Management Plan Revisions (I)

- ENR recommends that a plan revision is not required at this time; however, DeBeers must provide further description of mitigation and management strategies related to explosive management and the reduction of nitrates through appropriate review processes
- ENR requests that De Beers provide further rationale that the dam performance is not reliant on thermal conditions. The rationale should include whether the structures are designed such that they may be saturated in the event permafrost doesn't exist within their core



5.1 ENR's Comments on Water Management Plan Revisions (II)

- As thermal data is not linked to performance, ENR requests that De Beers provide additional information on the application of thermal monitoring and the implications of unfrozen conditions
- ENR recommends that De Beers describe if the Water Management Pond will be able to stop the migration of water from the facility if the dams are unfrozen



5.1 ENR's Comments on Water Management Plan Revisions (III)

- The Nitrogen, TDS and Strontium Response Plans were submitted to the MVLWB as part of a Water Licence Amendment Application. As stated in the Board's original response, it is unclear at this time how the requirements for these plans might change during the course of the amendment process. ENR is also of the opinion that the Water Management Plan should be a standalone document
 - ENR will continue to participate in the aforementioned amendment process as it relates to the related plans noted above, and water management in general



5.1 ENR's Comments on Water Management Plan Revisions (IV)

- It was previously recommended during the review of this document that De Beers expand on information provided related to response planning including information on timelines and any potential response actions that may occur. The Board determined that De Beers should submit timelines for the submission of response plans when triggered by Action Levels. De Beers' response and updated plan have noted that there are no timelines to submit response plans when Action Levels are triggered
 - ENR agrees with the Board and recommends that De Beers provide timelines for response plans following an exceedance. Note that this information is outstanding



5.1 ENR's Comments on Water Management Plan Revisions (V)

- ENR recommends that De Beers provide rationale for the thresholds selected within the Response Framework. A description of the increased risk rationalizing the various steps should be outlined



5.2 EC's Comments on Water Management Plan Revisions

- EC recommends that the Water Management Plan be revised to remain consistent throughout the report with the use of recycled water only for dust suppression to the extent practical
- EC recommends that additional details be added to the description of contingency measures when the water management pond nears capacity
- EC recommends that the relationship between threshold criteria (green, yellow, orange, and red) and action levels be clarified. Action levels for seepage quality and quantity should be clearly identified as they are required under the Water Licence



6. Agency's Activities

- SLEMA board members and staff visited the mine site on October 28, 2014



Underground Tour



7. SLEMA Reviews

- Revised Water Management Plan
- Updated Acid/Alkaline Rock Drainage and Geochemical Characterization Plan



7.1 Revised Water Management Plan

- Updated from the July 2014 version



Comments from the Environmental Analyst

- Based on Figure 2-1, $Q8=Q6+Q7$, the month by month calculation for Q8 is correct in Table 2-3, but the data source for Q8 should be changed to $Q8=Q6+Q7$ in Table 2-3
- In SLEMA's comment letter dated January 23, SLEMA recommended adding SNP 02-18 into Table 2-4, but no changes appear to be made in the updated Plan
- SLEMA appreciates the addition of Table 2-1 to provide linkage between the Water Treatment process and water licence discharge criteria. For the inter-lock system SLEMA commented on January 23, no description about it appears to be made



7.2 Updated Acid/Alkaline Rock Drainage and Geochemical Characterization Plan

- The updated Plan provides further information requested by the MVLWB
- No concerns are raised from the Environmental Analyst



8. Water Licence Amendment Application (I)

- The Department of Lands, on October 6, 2014, confirmed it has not received any correspondence from YKDFN, Tlicho Government, NWTMN, and NSMA in relation to the invitation dated September 6, and it has received correspondence from LKDFN and DKFN
 - No ministerial decisions have been made regarding the Report of Environmental Assessment
- NWTMN commented on the REA on October 23



8. Water Licence Amendment Application (II)

- The Minister of Lands made the Decision on the Report of Environmental Assessment and Reasons for Decision for the De Beers Canada Inc. Snap Lake Water Licence Amendment Project (MVEIRB file number EA1314-02), on October 31, 2014
- The MVLWB required that De Beers submit an Updated Project Description (UPD) and the additional information (Post-EA information Package), on October 31
 - “Once the *Post-EA Information Package* is received by the Board and is deemed sufficient, the Board will prepare and circulate a work plan.”



8.1 NWTMN Comments on Snap Lake Mine

- “Snap Lake is connected to Artillery Lake Watershed so it will impact water levels for when we go for Caribou, also their waste piles are going to be 400 feet and have acidic run off. If the water levels fluctuate at Artillery Lake and its watershed it can impact our ability to harvest wildlife. Impacts to the fish are unknown to date. Also with the rock pile going to be as high up to 400 feet, what impacts is that going to have on caribou migrations”



8.2 Minister's Decision (I)

- “The Responsible Ministers have given full and fair consideration to the views expressed by the Aboriginal governments and organizations during the environmental assessment and in recent correspondence. We have concluded that all points raised relating to potential adverse impacts from the proposed Project on asserted or established Aboriginal and/or treaty rights have been fully consulted on and will be accommodated, as appropriate, through the implementation of the recommended measures and the developer's commitments, as well as through processes established following the original Snap Lake environmental assessment in 2003. The implementation of the measures and commitments will be discussed in detail during the Mackenzie Valley Land and Water Board's (MVLWB) water licensing process, the developer's implementation of the Project, and continuing management and monitoring processes during Project operations.”



8.2 Minister's Decision (II)

- “The Minister of Environment and Natural Resources and I have agreed, under sub-paragraph 130(1)(b)(i) of the MVRMA, to adopt MVEIRB's recommendation that the development be approved subject to the implementation of the measures and developer's commitments contained in the Report. I confirm that in making this decision, the Responsible Ministers have considered the importance of the conservation of the lands, waters and wildlife of the Mackenzie Valley on which the Snap Lake water licence amendment might have an impact, as required under section 131.2 of the MVRMA.”

